**Project**: Energy Plant Production and Carbon Sequestration

**Recipient:** University of Tennessee Agriculture Institute

**Address:** 114 Morgan Hall, 2621 Morgan Circle Drive, Knoxville, Tennessee 37996-4500

**Subcommittee:** Agriculture

**Amount requested:** $3,000,000

**Project description:** The ARS at Knoxville will work in cooperation with University of Tennessee scientists in improving plant carbon production from atmospheric $CO_2$ and the sequestration of the carbon in plants; and develop technology for the production, harvesting, and transportation of energy plant (feedstock) for biofuel production. Foreign oil dependency can be reduced through the production of biofuels. The University of Tennessee has an exceptional bioenergy research program in the production and use of energy plants, particularly switch grass, for cellulosic conversion to energy, particularly ethanol. The elevation of CO2 and global warming caused largely by burning of fossil fuels and clearing of forests, worldwide, has been documented. This warming trend has caused an increasing amount of ice to melt at the polar caps. Many global models predict weather changes caused by the warming trend and rising water resulting in more frequent, violent storms. Moreover, elevated CO2 levels coinciding with warming will result in significant shifts in the makeup of plant and animal populations.

The President and Congress have cited the need to make the U.S. independent of the vagaries of foreign oil and stated their concern over global change in $CO_2$ accumulations and weather and support for expanded research in these critical areas. Advances in carbon sequestration have national and international benefit. Foreign oil dependency can be reduced through the production of biofuels, and the University of Tennessee has an exceptional bioenergy research program in the production and use of energy plants, particularly switch grass, for cellulosic conversion to energy, particularly ethanol. Additionally, by creating a cellulose-to-energy industry which relies on the agriculture sector for the basic inputs, economic impact is created through a number of mechanisms. First, conversion plants will be constructed and operated. Secondly, demand will be created for new agricultural products, grown on land not intensively utilized currently. This economic activity will, in part, supplant imports of foreign petroleum products, resulting in enhanced U.S. economic activity.